

1. A low pressure mercury vapor discharge lamp comprising:

a hermetically sealed envelope, the wall of said envelope comprising an elongated quartz tubular portion,

at least one thermionic electrode, mercury vapor, and at least one inert gas in said envelope, and

a mixture comprising indium metal and titanium metal fused together and to the inside surface of said quartz tubular portion, exposed to the mercury vapor.

2. A low pressure mercury vapor discharge lamp comprising:

a hermetically sealed envelope, the wall of said envelope comprising an elongated quartz tubular portion,

at least one thermionic electrode, mercury vapor, and at least one inert gas in said envelope, and

a mixture comprising indium metal and titanium metal fused together and to the inside surface of said quartz tubular portion, spaced from said electrode toward the center of said quartz tubular portion, exposed to the mercury vapor.

3. A low pressure mercury vapor discharge lamp comprising:

a hermetically sealed envelope, the wall of said envelope comprising an elongated quartz tubular portion,

at least one thermionic electrode, mercury vapor, and at least one inert gas in said envelope, and

an amalgam target consisting of indium metal and titanium metal fused to the inside surface of said quartz tubular portion, exposed to the mercury vapor.

4. A low pressure mercury vapor discharge lamp comprising:

a hermetically sealed envelope, a the wall of said envelope comprising an elongated quartz tubular portion,

at least one thermionic electrode, mercury vapor, and at least one inert gas in said envelope, and

an amalgam target consisting of indium metal and titanium metal fused to the inside surface of said quartz tubular portion, spaced from said electrode toward the center of said quartz tubular portion, exposed to the mercury vapor.

5. A low pressure mercury vapor discharge lamp comprising:

a hermetically sealed envelope, the wall of said envelope comprising an elongated quartz tubular portion,

at least one thermionic electrode, mercury vapor, and at least one inert gas in said envelope,

aluminum oxide fused to the inside surface of the quartz tube, and

a mixture comprising indium metal and titanium metal fused together and to the fused aluminum oxide and quartz surface of said tubular portion, exposed to the mercury vapor.

6. The lamp of claim 5 wherein said mixture is spaced from said electrode toward the center of said tubular portion.

7. A low pressure mercury vapor discharge lamp comprising:

a hermetically sealed envelope, the wall of said envelope comprising an elongated quartz tubular portion,

at least one thermionic electrode, mercury vapor, and at least one inert gas in said envelope,

aluminum oxide fused to the inside surface of said quartz tubular portion, and

an amalgam target consisting of indium metal and titanium metal fused to the fused aluminum oxide and quartz surface of said tubular portion, exposed to the mercury vapor.

8. In an elongated quartz envelope of a mercury vapor discharge lamp comprising an electrode in said envelope at one end of said envelope:

mercury in said envelope,

indium metal and titanium metal fused together and to the quartz wall of said envelope, spaced from said electrode toward the center of said envelope, exposed to the mercury.

9. A method for making a low pressure mercury vapor discharge lamp comprising the steps of:

inserting a thermionic electrode in a first end of a quartz tube that is transparent to radiation

products of low pressure mercury vapor discharge,

hermetically sealing said first end of said tube around electrical leads from said electrode,

in any order with,

placing a measured amount of indium metal on the inside surface of said quartz tube,

heating the quartz and indium under an inert gas at least until the indium is melted,

rubbing the molten indium with titanium metal until the titanium fuses with the indium and the titanium and indium fuse to said quartz tube,

inserting mercury in to said tube.

10. A method for making a low pressure mercury vapor discharge lamp comprising the steps of:

inserting a thermionic electrode in a first end of a quartz tube that is transparent to radiation products of low pressure mercury vapor discharge,

hermetically sealing said first end of said tube around electrical leads from said electrode,

in any order with,

placing a measured amount of indium metal combined with titanium metal on the inside surface of said quartz tube,

applying heat to the quartz until the indium and titanium are melted and fuse to said quartz tube,

inserting mercury into said tube.

11. The method of claim 10 further comprising the step of inserting inert gas into said tube so that the gas covers the melting indium and titanium.
12. The method of claim 10 wherein said measured amount is placed on said inside surface so that it is one of at the center of the tube or between the center of the tube and said electrode when both ends of said tube are sealed.

13. A mercury vapor discharge lamp comprising:

a hermetically sealed envelope, the wall of said envelope comprising an elongated quartz tubular portion,

at least one thermionic electrode, mercury vapor, and at least one inert gas in said envelope, and

a mixture comprising indium metal and titanium metal fused together and to the inside surface of said quartz tubular portion, exposed to the mercury vapor.

14. A mercury vapor discharge lamp comprising:

a hermetically sealed envelope, the wall of said envelope comprising an elongated quartz tubular portion,

at least one thermionic electrode, mercury vapor, and at least one inert gas in said envelope, and

a mixture comprising indium metal and titanium metal fused together and to the inside surface of said quartz tubular portion, spaced from said electrode toward the center of said quartz tubular portion, exposed to the mercury vapor.

15. A mercury vapor discharge lamp comprising:

a hermetically sealed envelope, the wall of said envelope comprising an elongated quartz tubular portion,

at least one thermionic electrode, mercury vapor, and at least one inert gas in said envelope, and

an amalgam target consisting of indium metal and titanium metal fused to the inside surface of said quartz tubular portion, exposed to the mercury vapor.

16. A method for making a mercury vapor discharge lamp comprising the steps of:

inserting a thermionic electrode in a first end of a quartz tube that is transparent to radiation products of mercury vapor discharge,

hermetically sealing said first end of said tube around electrical leads from said electrode,

in any order with,

placing a measured amount of indium metal on the inside surface of said quartz tube,

heating the quartz and indium under an inert gas at least until the indium is melted,

rubbing the molten indium with titanium metal until the titanium fuses with the indium and the titanium and indium fuse to said quartz tube,

inserting mercury in to said tube.

17. A method for making a mercury vapor discharge lamp comprising the steps of:

inserting a thermionic electrode in a first end of a quartz tube that is transparent to radiation products of mercury vapor discharge,

hermetically sealing said first end of said tube around electrical leads from said electrode,

in any order with,

placing a measured amount of indium metal combined with titanium metal on the inside surface of said quartz tube,

applying heat to the quartz until the indium and titanium are melted and fuse to said quartz tube,

inserting mercury into said tube.

18. The method of claim 17 further comprising the step of inserting inert gas into said tube so that the gas covers the melting indium and titanium.

19. The method of claim 17 wherein said measured amount is placed on said inside surface so

that it is one of at the center of the tube or between the center of the tube and said electrode when both ends of said tube are sealed.